

Tank mounted return line filter

RE 51424/06.11
Replaces: 11.09

1/26

Type 10TEN0040 to 1000; 10TE2000/2500

Size according to **DIN 24550**: 0040 to 1000
 Additional sizes: 2000, 2500
 Nominal pressure 10 bar [*145 psi*]
 Connection up to G 1 1/2; to SAE 4"; to SAE 24



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Features

The tank mounted return line filters are designed for installation on fluid tanks. They serve the separation of solid materials from the whole fluid flowing back to the tanks.

They distinguish themselves by the following:

- Adsorption of very fine particles across a broad pressure differential range
- High dirt holding capacity thanks to large specific filter area
- Good chemical resistance of the filter elements
- High collapse resistance of the filter elements (e.g. in case of cold start)
- Filter ratings: 3...100 µm
- By default, the filters are equipped with a bypass valve
- Broad range of accessories, e.g. different maintenance indicators, outlet pipes, ...

Ordering code

of the filters of sizes 0040 to 0100

10	TEN	—	A	00	—	—	—
----	-----	---	---	----	---	---	---

Pressure

10 bar [145 psi] = 10

Design

Return line filter, simple,
with filter element according
to DIN 24550 = TEN

Size

0040 = 0040
0063 = 0063
0100 = 0100

Filter rating in µm

nominal

Stainless steel wire mesh, cleanable
G10, G25, G40, G60, G100 = G...

Paper, non-cleanable
P10, P25 = P...

absolute (ISO 16889)

Micro glass, non-cleanable
H3XL, H6XL, H10XL, H20XL = H...XL

Pressure differential

Max. admissible pressure differential of the filter element
30 bar [435 psi] with bypass valve
(cracking pressure 3.5 bar [51 psi]) = A

Element model

Standard adhesive T = 100 °C [212 °F] = 0...
Standard material = ...0

Maintenance indicator

Without = 0
Mechanical optical (polyamide, switching pressure 2.2 bar [32 psi]) = P2,2
Mechanical optical (aluminum, switching pressure 2.2 bar [32 psi]) = V2,2
Mechanical optical (aluminum, switching pressure 1.5 bar [22 psi]) = V1,5
Mechanical optical (aluminum, switching pressure 0.8 bar [12 psi]) = V0.8
Pressure gauge 0...6 bar [0...87 psi] right = MR
Mechanical optical + pressure gauge right = MRV2,2

Complementary details (if necessary)

NB = Without bypass
F = Ventilation filter
FN = Ventilation filter with
surge protection
M = Minimes connection
(not possible with pressure gauge)
R110 = Outlet pipe 110 mm [4.3"]
R150 = Outlet pipe 150 mm [5.9"]
R250 = Outlet pipe 250 mm [9.8"]
S = Filling port
(not possible with mech.-opt.
maintenance indicator)

Main inlet

	Port	Frame size	
		0040	0063-0100
R3 =	G3/4	●	x
R4 =	G1	x	●
U4 =	1 1/16-12 UN-2B [SAE 12]	x	x
U9 =	1 5/16-12 UN-2B [SAE 16]	x	x

● = Standard port
x = Alternative port

Seal

M = NBR seal
V = FKM seal

Example: 10TEN0040-H10XLA00-P2,2-M-R3
10TEN0100-H10XLA00-MR-M-R4

Further models, e.g. filter media, connections, are available at request.

Ordering code

of the filters of sizes 0160 to 0630

10	TEN	-	A	00	-	-	-
----	-----	---	---	----	---	---	---

Pressure

10 bar [145 psi] = 10

Design

Return line filter, simple, with filter element according to DIN 24550 = TEN

Size

0160 = 0160
 0250 = 0250
 0400 = 0400
 0630 = 0630

Filter rating in µm nominal

Stainless steel wire mesh, cleanable G10, G25, G40, G60, G100 = G...

Paper, non-cleanable P10, P25 = P...

absolute (ISO 16889)

Micro glass, non-cleanable H3XL, H6XL, H10XL, H20XL = H...XL

Pressure differential

Max. admissible pressure differential of the filter element 30 bar [435 psi] incl. bypass valve (cracking pressure 3.5 bar [51 psi]) = A

Element model

Standard adhesive T = 100 °C [212 °F] = 0...

Standard material = ...0

Maintenance indicator

Without = 0

Mechanical optical (polyamide, switching pressure 2.2 bar [32 psi]) = P2,2

Mechanical optical (aluminum, switching pressure 2.2 bar [32 psi]) = V2,2

Mechanical optical (aluminum, switching pressure 1.5 bar [22 psi]) = V1,5

Mechanical optical (aluminum, switching pressure 0.8 bar [12 psi]) = V0.8

Pressure gauge 0...6 bar [0...87 psi] left = ML

Mechanical optical + pressure gauge left = MLV2,2

Complementary details (if necessary)

NB = Without bypass
M = Minimes connection (not possible with pressure gauge)
S = Filling port (not possible with mech.-opt. maintenance indicator)

Main inlet

	Port	Frame size			
		0160	0250	0400	0630
R5 =	G1 1/4	●	x		
R6 =	G1 1/2	x	●		
S5 =	SAE 1 1/4" 3000 psi	x	x		
S6 =	SAE 1 1/2" 3000 psi	x	x		
U6 =	1 7/8-12 UN 2B [SAE 24]	x	x		
S8 =	SAE 2" 3000 psi			●	x
S9 =	SAE 2 1/2" 3000 psi			x	●

= Standard port
 = Alternative port

Seal

M = NBR seal
V = FKM seal

**Example: 10TEN0160-P25A00-P2,2-M-R5
 10TEN0630-H10XLA00-ML-M-S9**

Further models, e.g. filter media, connections, are available at request.

Ordering code

of the filters of sizes 1000 to 2500

10	TE		—	A	00	—	—	—	—
----	----	--	---	---	----	---	---	---	---

Pressure

10 bar [145 psi] = 10

Design

Return line filter simple = TE

Filter element

According to DIN 24550
(not with 2000 and 2500) = N

Size

10TEN1000 = 1000
10TE2000 = 2000
10TE2500 = 2500

Filter rating in µm nominal

Stainless steel wire mesh, cleanable
G10, G25, G40, G60, G100 = G...

Paper, non-cleanable
P10, P25 = P...

absolute (ISO 16889)

Micro glass, non-cleanable
H3XL, H6XL, H10XL, H20XL = H...XL

Pressure differential

Max. admissible pressure differential of the filter element
30 bar [435 psi] incl. bypass valve
(cracking pressure 3.5 bar [51 psi]) = A

Element model

Standard adhesive T = 100 °C [212 °F] = 0...
Standard material = ...0

Maintenance indicator

Without = 0
Mechanical optical (polyamide, switching pressure 2.2 bar [32 psi]) = P2,2
Mechanical optical (aluminum, switching pressure 2.2 bar [32 psi]) = V2,2
Mechanical optical (aluminum, switching pressure 1.5 bar [22 psi]) = V1,5
Mechanical optical (aluminum, switching pressure 0.8 bar [12 psi]) = V0.8
Pressure gauge 0...6 bar [0...87 psi] left = ML
Mechanical optical + pressure gauge left = MLV2,2

Complementary details (if necessary)

NB = Without bypass
M = Minimes connection
(not possible with pressure gauge)
S = Filling port
(not possible with mech.-opt.
maintenance indicator)

Main inlet

	Port	Frame size		
		1000	2000	2500
S10 =	SAE 3" 3000 psi	●	x	x
S12 =	SAE 4" 3000 psi	x	●	●

● = Standard port
x = Alternative port

Seal

M = NBR seal
V = FKM seal

Example: 10TEN1000-H10XLA00-P2,2-M-S10
10TE2500-H20XLA00-P2,2-M-S12

Further models, e.g. filter media, connections, are available at request.

Ordering code

of the filter element

<table border="1" style="margin: auto;"> <tr> <td style="padding: 2px 10px;">1.</td> <td style="padding: 2px 10px;">—</td> <td style="padding: 2px 10px;">A00</td> <td style="padding: 2px 10px;">—</td> <td style="padding: 2px 10px;">0</td> <td style="padding: 2px 10px;">—</td> </tr> </table>		1.	—	A00	—	0	—	
1.	—	A00	—	0	—			
Design = 1. Size TEN... (filter elements according to DIN 24550) = 0040 0063 0100 0160 0250 0400 0630 1000 TE... = 2000 2500 Filter rating in µm nominal Stainless steel wire mesh, cleanable G10, G25, G40, G60, G100 = G... Paper, non-cleanable P10, P25 = P... absolute (ISO 16889) Micro glass, non-cleanable H3XL, H6XL, H10XL, H20XL = H...XL	Seal M = NBR seal V = FKM seal Bypass valve 0 = at filter element always 0 Pressure differential Max. admissible pressure differential of the filter element A00 = 30 bar [435 psi]	Order example: 1.0100 H3XL-A00-0-M						

For detailed information on Rexroth filter elements please refer to data sheet 51420.

Standard types

Tank mounted return line filter, filter rating 3 µm, 10 µm and 20 µm

Filter type	Flow in l/min [gpm] with $v = 30 \text{ mm}^2/\text{s}$ [142 SUS] and $\Delta p = 0.5 \text{ bar}$ [7.25 psi]	Port/Material no.			
10TEN0040-H20XLA00-P2,2-M-...	62 [16.4]	..R3	R928041199	..U4	R928041200
10TEN0063-H20XLA00-P2,2-M-...	80 [21.1]	..R4	R928041201	..U9	R928041202
10TEN0100-H20XLA00-P2,2-M-...	95 [25.1]	..R4	R928041203	..U9	R928041204
10TEN0160-H20XLA00-P2,2-M-...	260 [68.7]	..R5	R928041205	..S5	R928041206
10TEN0250-H20XLA00-P2,2-M-...	320 [84.5]	..R6	R928041208	..S6	R928041209
10TEN0400-H20XLA00-P2,2-M-...	560 [147.9]	..S8	R928041210	..S9	R928041211
10TEN0630-H20XLA00-P2,2-M-...	630 [166.4]	..S9	R928041223	..S8	R928041224
10TEN1000-H20XLA00-P2,2-M-...	1270 [335.5]	..S10	R928041225	..S12	R928041226
10TE2000-H20XLA00-P2,2-M-...	1600 [422.7]	..S12	R928041228	..S10	R928041229
10TE2500-H20XLA00-P2,2-M-...	1680 [443.8]	..S12	R928041230	..S10	R928041231
10TEN0040-H10XLA00-P2,2-M-...	43 [11.3]	..R3	R928041271	..U4	R928041272
10TEN0063-H10XLA00-P2,2-M-...	62 [16.4]	..R4	R928041273	..U9	R928041274
10TEN0100-H10XLA00-P2,2-M-...	80 [21.1]	..R4	R928041275	..U9	R928041276
10TEN0160-H10XLA00-P2,2-M-...	190 [50.2]	..R5	R928041277	..S5	R928041278
10TEN0250-H10XLA00-P2,2-M-...	260 [68.7]	..R6	R928041279	..S6	R928041280
10TEN0400-H10XLA00-P2,2-M-...	460 [121.5]	..S8	R928041281	..S9	R928041282
10TEN0630-H10XLA00-P2,2-M-...	560 [147.9]	..S9	R928041283	..S8	R928041284
10TEN1000-H10XLA00-P2,2-M-...	970 [256.2]	..S10	R928041285	..S12	R928041286
10TE2000-H10XLA00-P2,2-M-...	1350 [356.6]	..S12	R928041288	..S10	R928041289
10TE2500-H10XLA00-P2,2-M-...	1450 [383.0]	..S12	R928041290	..S10	R928041291
10TEN0040-H3XLA00-P2,2-M-...	23 [6.1]	..R3	R928041292	..U4	R928041293
10TEN0063-H3XLA00-P2,2-M-...	35 [9.2]	..R4	R928041294	..U9	R928041295
10TEN0100-H3XLA00-P2,2-M-...	52 [13.7]	..R4	R928041296	..U9	R928041297
10TEN0160-H3XLA00-P2,2-M-...	105 [27.7]	..R5	R928041298	..S5	R928041299
10TEN0250-H3XLA00-P2,2-M-...	160 [42.3]	..R6	R928041300	..S6	R928041301
10TEN0400-H3XLA00-P2,2-M-...	290 [76.6]	..S8	R928041302	..S9	R928041303
10TEN0630-H3XLA00-P2,2-M-...	410 [108.3]	..S9	R928041304	..S8	R928041305
10TEN1000-H3XLA00-P2,2-M-...	560 [147.9]	..S10	R928041306	..S12	R928041307
10TE2000-H3XLA00-P2,2-M-...	900 [237.7]	..S12	R928041308	..S10	R928041309
10TE2500-H3XLA00-P2,2-M-...	1100 [290.6]	..S12	R928041310	..S10	R928041311

Standard types


Element type	Filter material/Material no.		
	H3XL	H10XL	H20XL
1.0040 ...A00-0-M	R928005835	R928005837	R928005838
1.0063 ...A00-0-M	R928005853	R928005855	R928005856
1.0100 ...A00-0-M	R928005871	R928005873	R928005874
1.0160 ...A00-0-M	R928005889	R928005891	R928005892
1.0250 ...A00-0-M	R928005925	R928005927	R928005928
1.0400 ...A00-0-M	R928005961	R928005963	R928005964
1.0630 ...A00-0-M	R928005997	R928005999	R928006000
1.1000 ...A00-0-M	R928006033	R928006035	R928006036
1.2000 ...A00-0-M	R928041312	R928040797	R928041313
1.2500 ...A00-0-M	R928041314	R928040800	R928041315

Ordering code, standard types: Electronic switching element for maintenance indicator

If an electric switching element with signal suppression up to 30 °C is used (WE-2SPSU-M12X1, **R928028411**), it has to be ensured that the aluminum version of the mechanical-optical maintenance indicator must be used. In the filter type key,

these maintenance indicators are referred to as "V2,2", "V1,5" or "V0,8". Also refer to the chapter "Spare parts and accessories".

The temperature-controlled signal processing does not work with mechanical-optical maintenance indicators made of polyamide.

WE 		
Maintenance indicator	= WE	
Electronic switching element		
Type of signal		Connector
1 switching point	= 1SP	M12x1 = Round plug-in connection M12x1, 4-pin
2 switching points, 3 LED	= 2SP	EN 175301-803 = Rectangular plug-in connector, 2-pin design A according to EN-175301-803
2 switching points, 3 LED and signal suppression up to 30 °C [86 °F]	= 2SPSU	

Material numbers of the mechanical optical maintenance indicators

Material no.	Type	Signal	Switching points	Connector	LED	
R928028409	WE-1SP-M12x1	Changeover	1	M12x1	No	
R928028410	WE-2SP-M12x1	Normally open (at 75 %)/ normally closed contact (at 100 %)	2		EN 175301-803	3 pieces
R928028411	WE-2SPSU-M12x1					
R928036318	WE-1SP-EN175301-803	Normally closed contact	1			No

Order example:

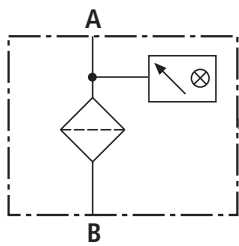
Tank mounted return line filter with mechanical-optical maintenance indicator for $p_{nom.} = 10 \text{ bar}$ [145 psi], size 0100, with filter element 10 µm and electronic switching element M12x1 with 1 switching point for hydraulic fluid mineral oil HLP according to DIN 51524.

Filter: 10TEN0100-H10XLA00-P2,2-M-R4
El. maintenance indicator: WE-1SP-M12x1

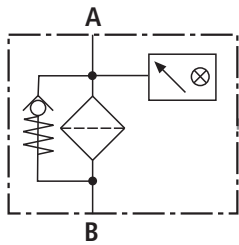
Material no.: R928041275
Material no.: R928028409

For round plug-in connections refer to data sheet 08006.

Symbols



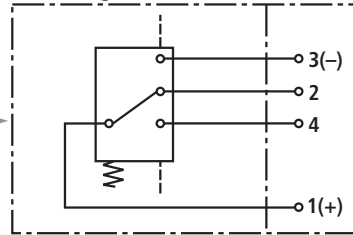
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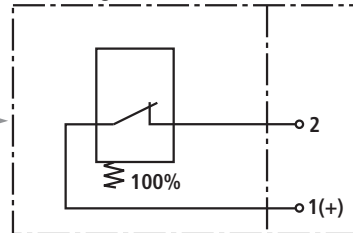
Electronic switching element
for maintenance indicator

Switching element Connector



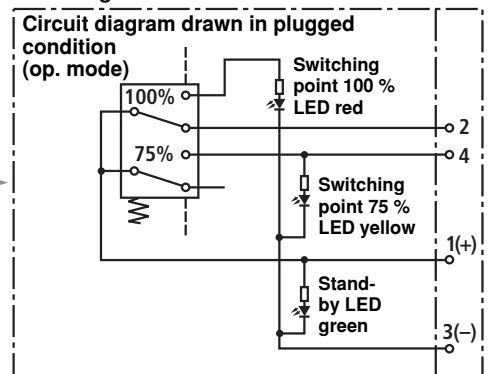
WE-1SP-M12x1

Switching element Connector



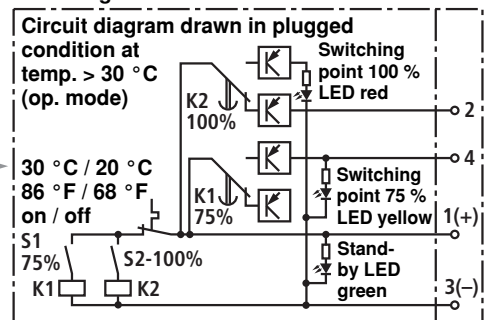
WE-1SP-EN175301-803

Switching element Connector



WE-2SP-M12x1

Switching element Connector



WE-2SPSU-M12x1

Function, section

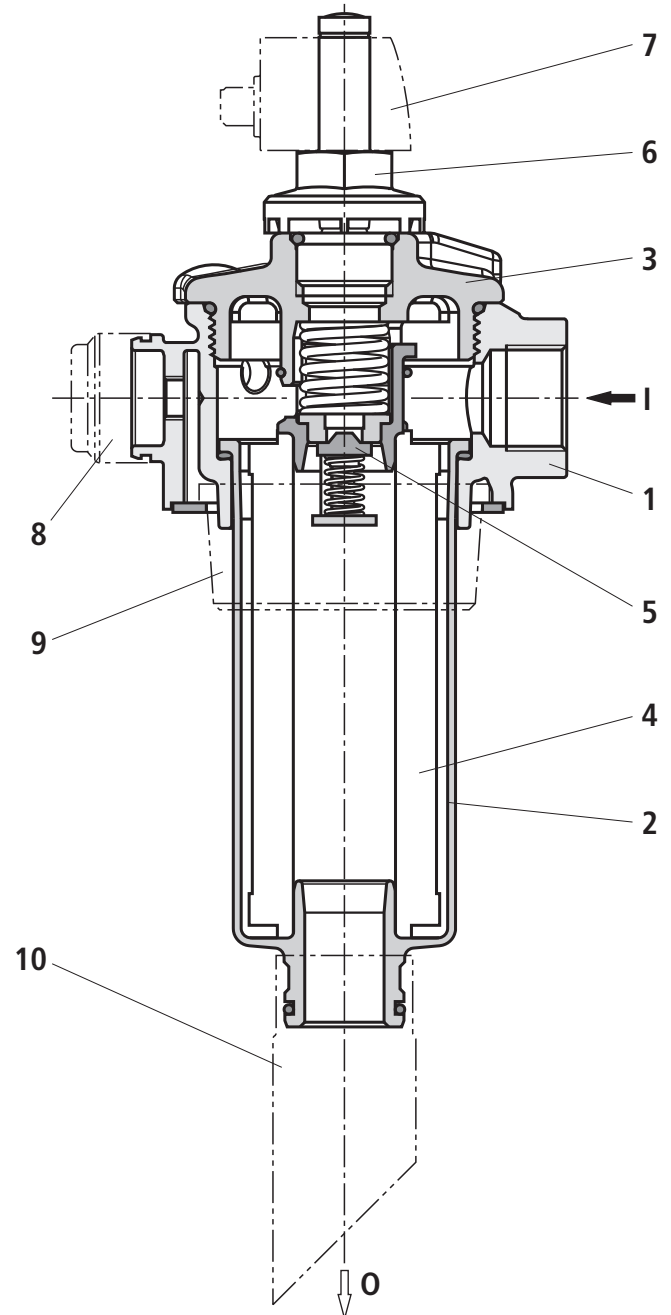
The tank mounted return line filters are designed for direct attachment to the fluid tank.

They basically consist of filter head (1), filter bowl (2), cover (3), filter element (4) as well as a serial bypass valve (5).

The filters can be configured with different maintenance indicators - here, you are shown a mechanical-optical maintenance indicator (6) in connection with an electronic switching element (7).

Depending on the filter size, more additional functions are available - e.g. a ventilation filter (8), surge protection (9) or return pipes in different lengths (10) - in this connection, also refer to the chapter "Spare parts and accessories".

During operation, the hydraulic fluid reaches the filter housing via port I, here flows through the filter element (4) in the flow direction from outside to inside and is cleaned according to the filter rating. The dirt particles filtered out settle in the filter element. Via the outlet opening O, the filtered hydraulic fluid enters the tank.



Sample presentation using a 10TEN0063 filter.

Technical data (For applications outside these parameters, please consult us!)**general**

Installation position		Vertical					
Ambient temperature range		°C [$^{\circ}$ F] -10...+100 [14...+212] (shortly to -30 [-22])					
Size	Size	0040	0063	0100	0160	0250	
Weight	kg [lbs]	1.4 [3.09]	1.6 [3.53]	1.8 [3.97]	4.5 [9.92]	5.0 [11.03]	
Size	Size	0400	0630	1000	2000	2500	
Weight	kg [lbs]	8.0 [17.64]	10.0 [22.05]	18 [39.7]	21.5 [47.42]	27 [59.55]	
Material	Filter cover	Carbon fiber reinforced plastic (sizes 0040...0100) Aluminum (sizes 0160...2500)					
	Filter head	Aluminum					
	Filter bowl	Carbon fiber reinforced plastic (sizes 0040...0630) Coated steel (sizes 1000...2500)					
	Optical maintenance indicator	(P2,2)	Plastic PA6				
		(V...)	Aluminum				
	Electronic switching element	Plastic PA6					
	Pressure gauge	Plastic					

hydraulic

Maximum operating pressure	bar [psi]	10 [145]
Hydraulic fluid temperature range	°C [$^{\circ}$ F]	-10...+100 [+14...+212]
Minimum conductivity of the medium	pS/m	300
Fatigue strength according to ISO 10771	Load cycles	> 10 ⁵ with max. operating pressure
Cracking pressure of the bypass valve	bar [psi]	3.5 ± 0.35 [50.7 ± 5]
Type of pressure measurement of the maintenance indicator		Backpressure
Response pressure of the P2,2 maintenance indicator	bar [psi]	2.2 (+0.45/-0.25) [31.9 (+6.4/-3.6)]
Response pressure of the V... maintenance indicator	bar [psi]	2.2 ± 0.25 [31.9 ± 3.6], 1.5 ± 0.2 [21.8 ± 2.9], 0.8 ± 0.15 [11.6 ± 2.2]

electrical (electronic switching element)

Electrical connection		Round plug-in connection M12x1, 4-pin			Standard connection EN 175301-803
		Version	1SP-M12x1	2SP-M12x1	2SP-M12x1
Contact load, direct voltage	A _{max.}	1			
Voltage range	V _{max.}	150 (AC/DC)	10-30 (DC)		250 (AC) / 200 (DC)
Max. switching power with resistive load	W	20			70
Switching type	75 % signal	-	Normally open contact		-
	100 % signal	Change-over	Normally closed contact		Normally closed contact
	2SPSU			Signal switching through at 30 °C [86 °F], Return switching at 20 °C [68 °F]	
Display via LEDs in the electronic switching element 2SP...			Stand-by (LED green); 75 % switching point (LED yellow) 100 % switching point (LED red)		
Protection class according to EN 60529		IP 67			IP 65
Ambient temperature range		°C [$^{\circ}$ F] -25...+85 [-13...+185]			
For direct voltage above 24 V, spark extinguishing is to be provided for protecting the switching contacts.					
Weight	Electronic switching element: - with round plug-in connection M12x1	kg [lbs]	0.1 [0.22]		

Technical data (For applications outside these parameters, please consult us!)**Filter element**

Glass fiber paper H..XL		Single-use element on the basis of inorganic fiber				
		Filtration ratio according to ISO 16889 up to $\Delta p = 5 \text{ bar [72.5 psi]}$		Achievable oil cleanliness according to ISO 4406 (SAE-AS 4059)		
Particle separation	H20XL	$\beta_{20(c)} \geq 200$		19/16/12 ... 22/17/14		
	H10XL	$\beta_{10(c)} \geq 200$		17/14/10 ... 21/16/13		
	H6XL	$\beta_{6(c)} \geq 200$		15/12/10 ... 19/14/11		
	H3XL	$\beta_{5(c)} \geq 200$		13/10/8 ... 17/13/10		
Admissible pressure differential	bar [psi]	30 [435]				
Size	Size	0040	0063	0100	0160	0250
Weight	kg [lbs]	0.20 [0.44]	0.30 [0.66]	0.35 [0.77]	0.8 [1.76]	1.1 [2.42]
Size	Size	0400	0630	1000	2000	2500
Weight	kg [lbs]	2.0 [4.41]	2.3 [5.07]	3.0 [6.62]	3.5 [7.72]	5.0 [11.03]

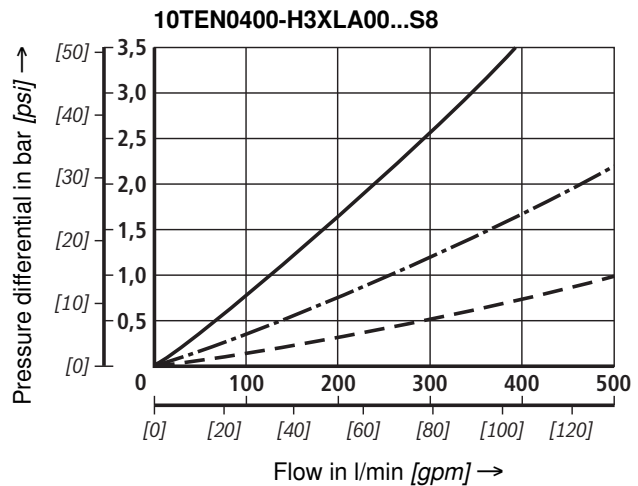
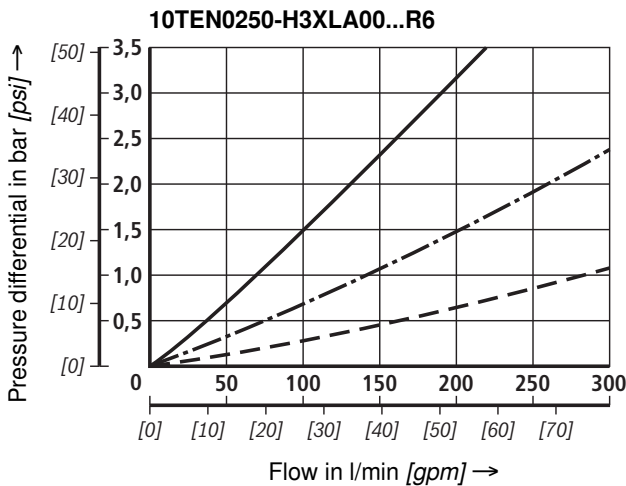
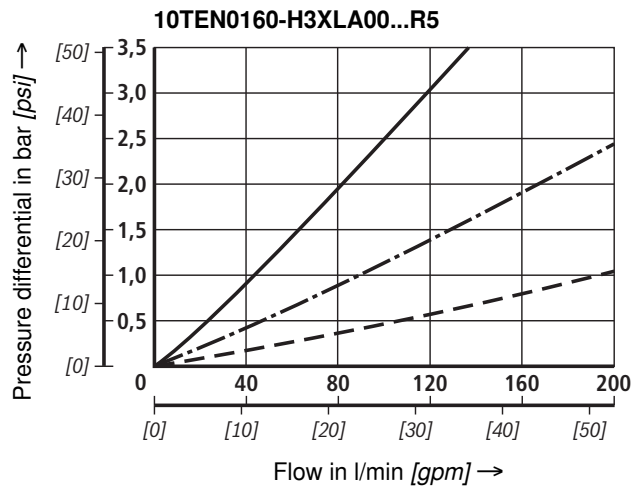
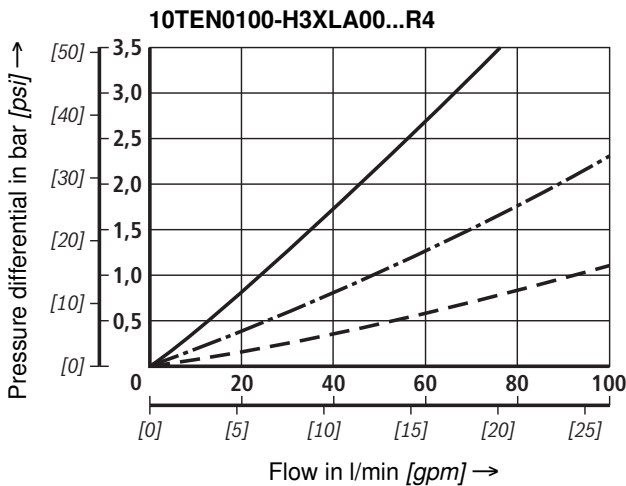
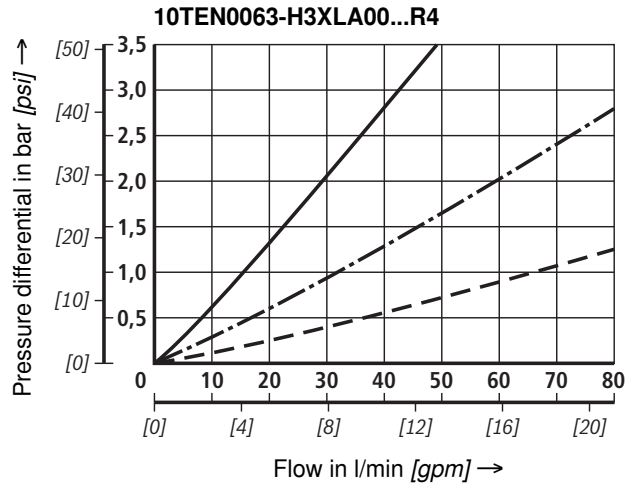
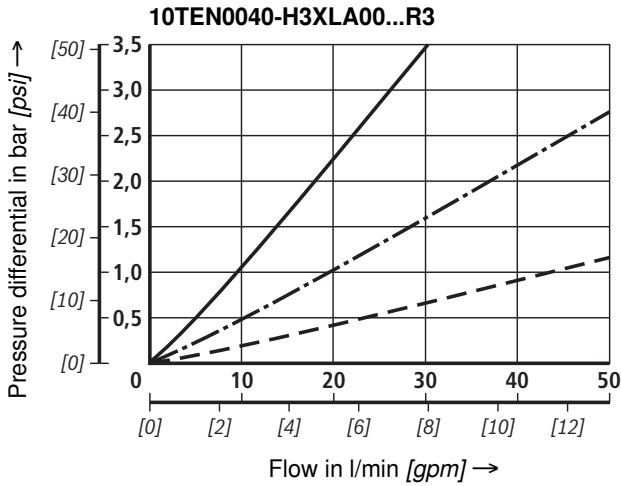
Seal material for hydraulic fluids

Mineral oils			Ordering code			
Mineral oil	HLP	according to DIN 51524	M			
Flame-resistant hydraulic fluids			Ordering code			
Emulsions	HFA-E	according to DIN 24320	M			
Synthetic water solutions	HFA-S	according to DIN 24320	M			
Water solutions	HFC	according to VDMA 24317	M			
Phosphoric acid esters	HFD-R	according to VDMA 24317	V			
Organic esters	HFD-U	according to VDMA 24317	V			
Fast biodegradable hydraulic fluids			Ordering code			
Triglycerides (rape seed oil)	HETG	according to VDMA 24568	M			
Synthetic esters	HEES	according to VDMA 24568	V			
Polyglycols	HEPG	according to VDMA 24568	V			

Characteristic curves (measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F] **H3XL**

An optimal filter design and the design with other filter media and filtration ratings are enabled by our computer program "BR Filter Select".

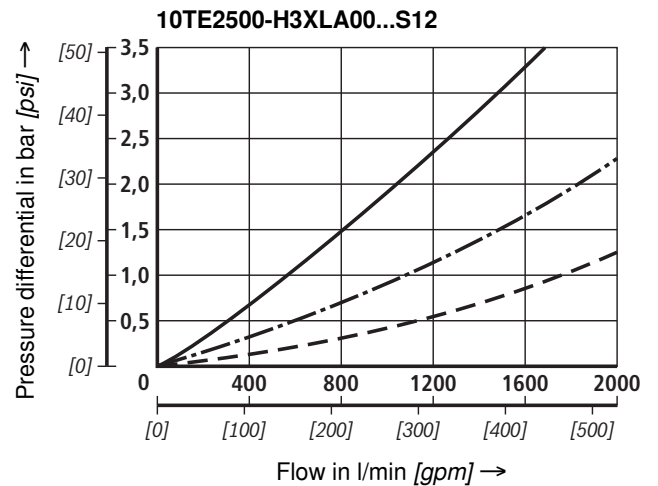
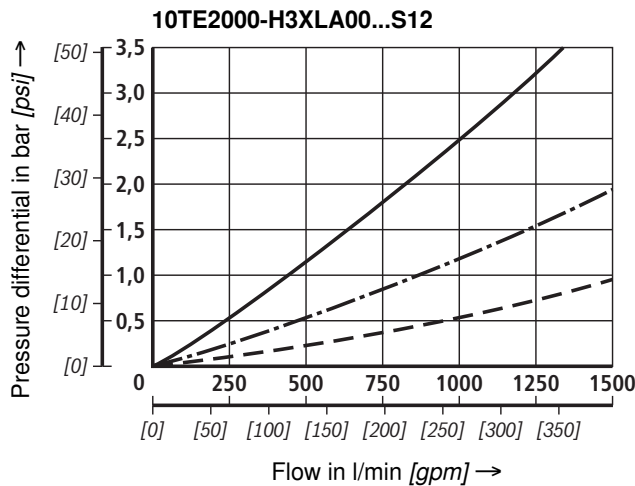
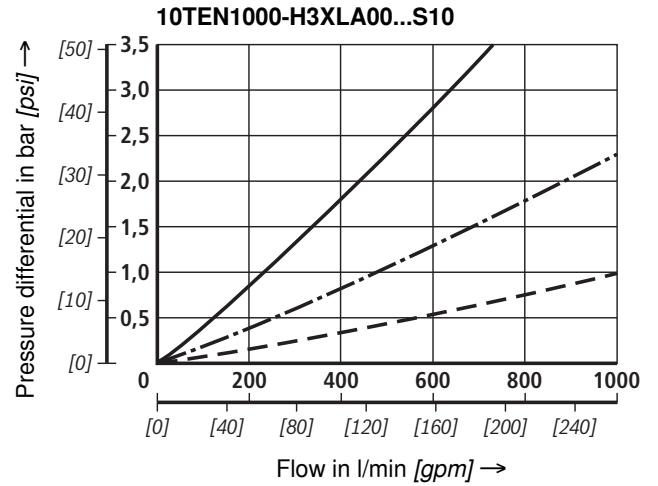
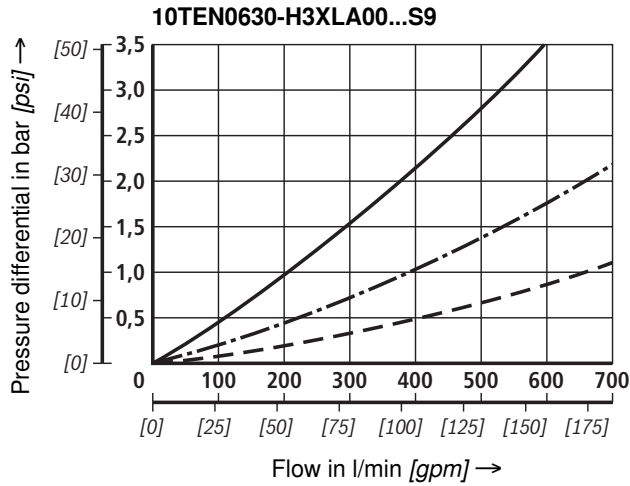
Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [142 SUS]



Characteristic curves (measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F] **H3XL**

An optimal filter design and the design with other filter media and filtration ratings are enabled by our computer program "BR Filter Select".

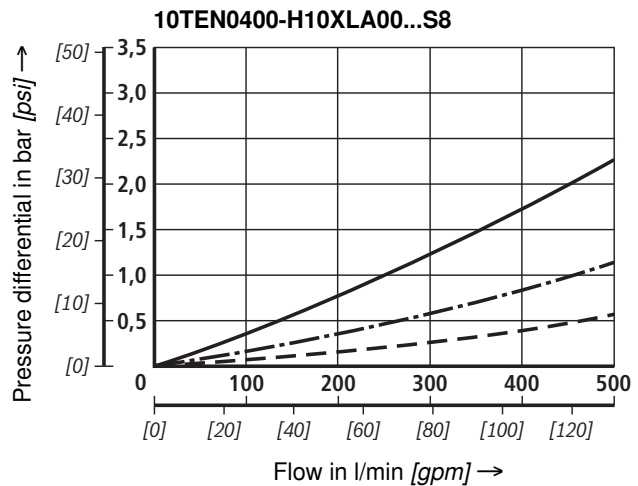
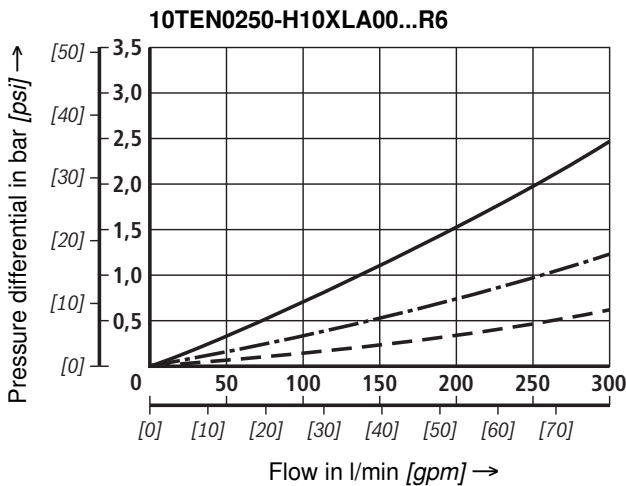
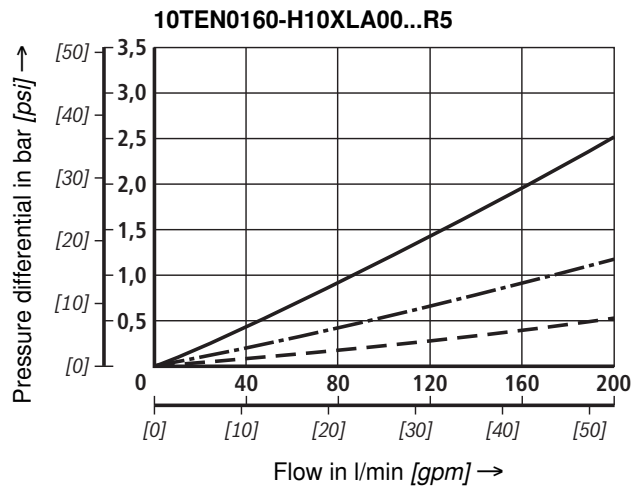
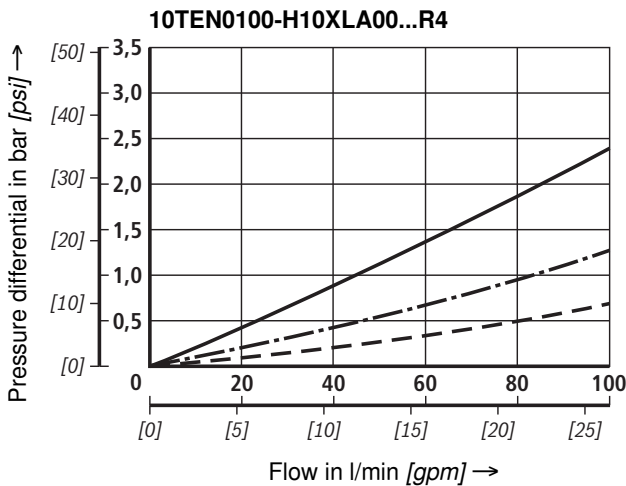
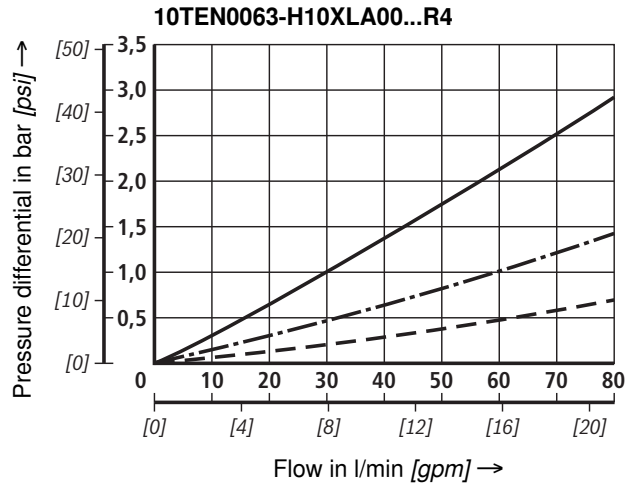
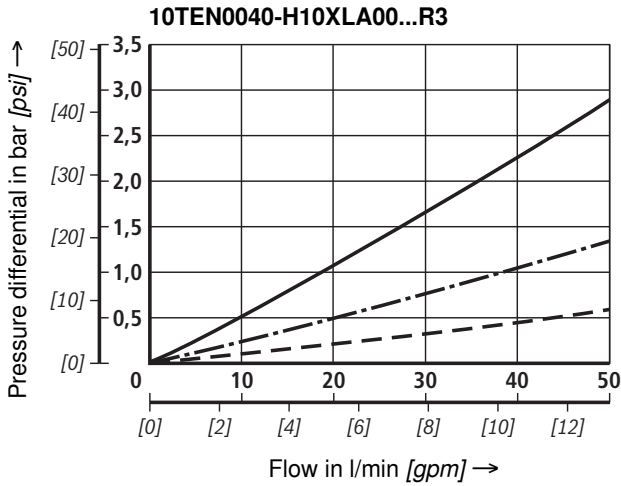
Oil viscosity:
 — 140 mm²/s [649 SUS]
 - · - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [142 SUS]



Characteristic curves (measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C [104 °F]) **H10XL**

An optimal filter design and the design with other filter media and filtration ratings are enabled by our computer program "BR Filter Select".

Oil viscosity:
 — 140 mm²/s [649 SUS]
 - - - 68 mm²/s [315 SUS]
 - - - 30 mm²/s [142 SUS]

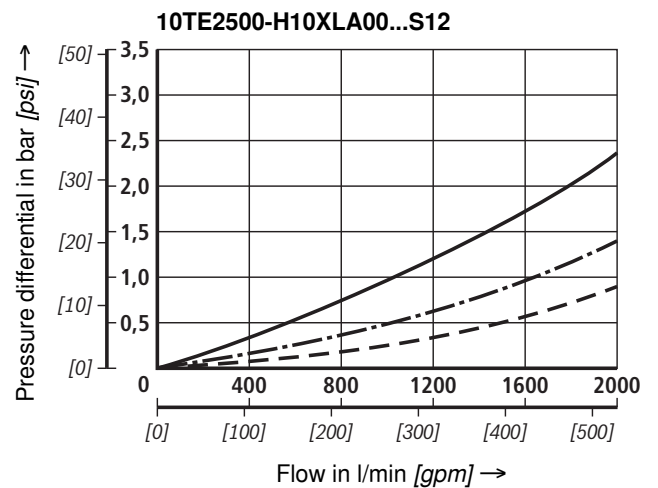
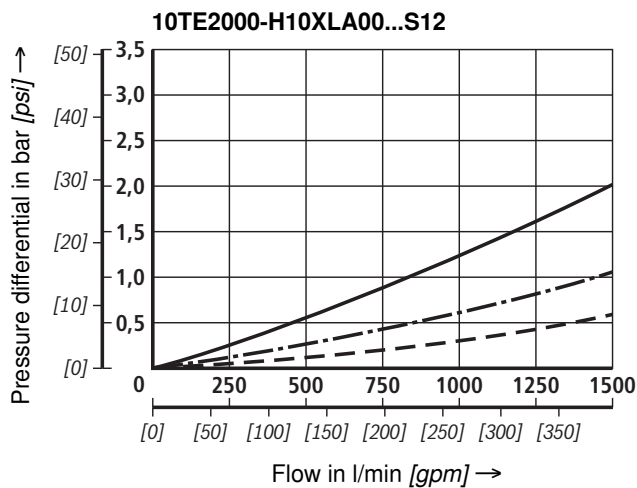
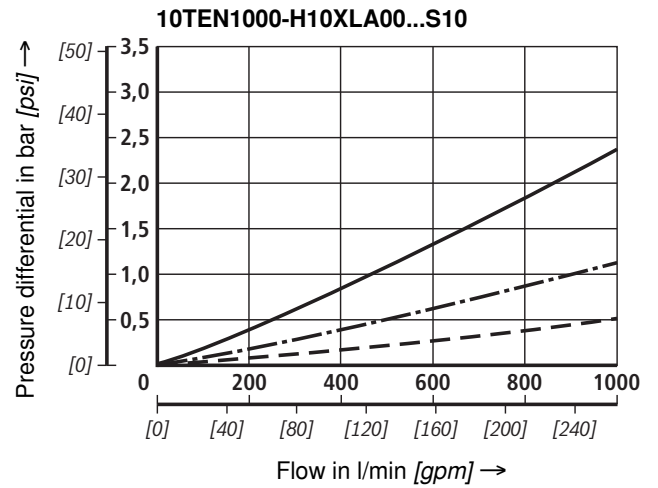
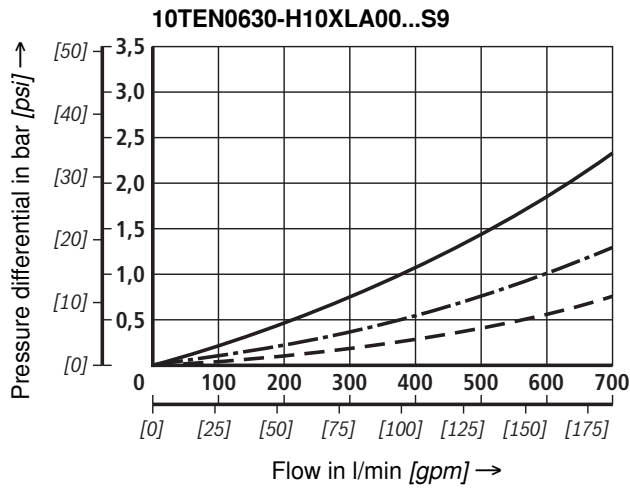


Characteristic curves (measured with mineral oil HLP46 according to DIN 51524 at T = 40 °C) [104 °F] **H10XL**

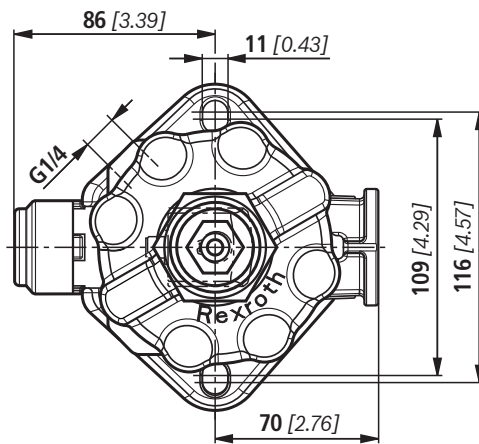
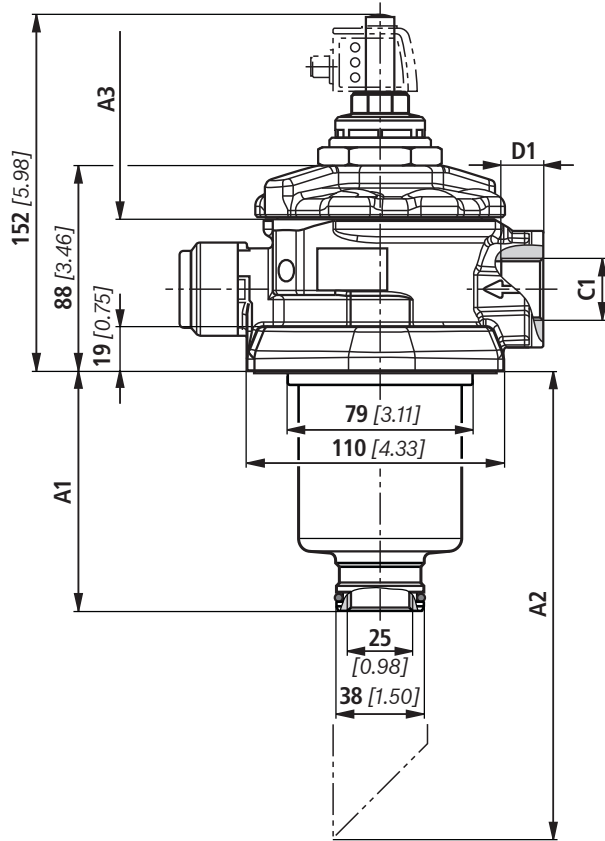
An optimal filter design and the design with other filter media and filtration ratings are enabled by our computer program "BR Filter Select".

Oil viscosity:

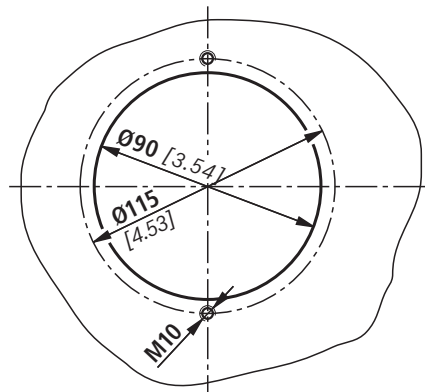
- 140 mm²/s [649 SUS]
- · - 68 mm²/s [315 SUS]
- - - 30 mm²/s [142 SUS]



Unit dimensions size 0040...0100 (dimensions in mm [inch])



Tank connection diagram:



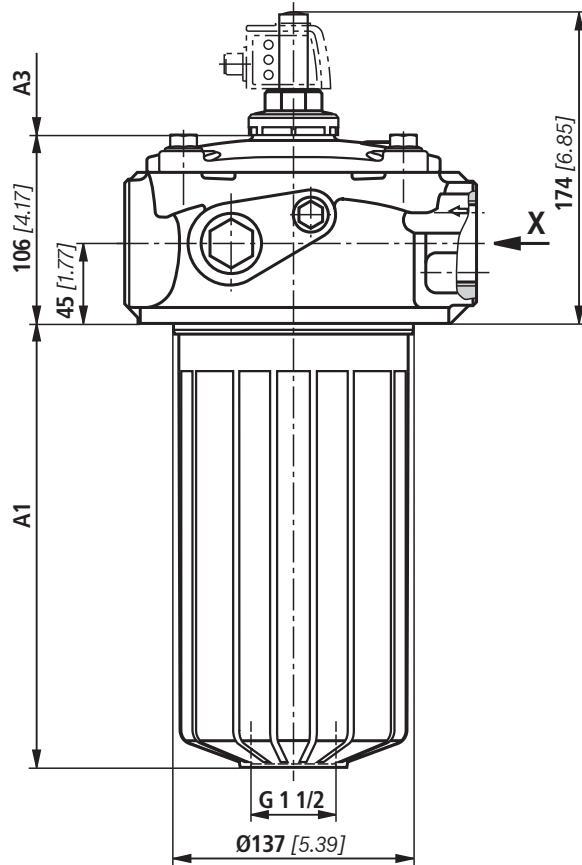
Filter housing for filter elements in accordance with DIN 24550

Type 10 TEN	Content in l [gal]	A1	A2 ¹⁾	A3 ²⁾	C1		D1
					Standard Pipe thread according to ISO 228	Optional Pipe thread according to SAE J1926	
0040	0.6 [0.16]	103 [4.06]	230 [9.06]	100 [3.94]	G3/4	SAE 12 1 1/16-12 UN-2B	16 [0.63]
0063	0.8 [0.21]	163 [6.42]	290 [11.42]	160 [6.30]	G1	SAE 16 1 5/16-12 UN-2B	18 [0.71]
0100	1.2 [0.32]	253 [9.96]	380 [14.96]	250 [9.84]			

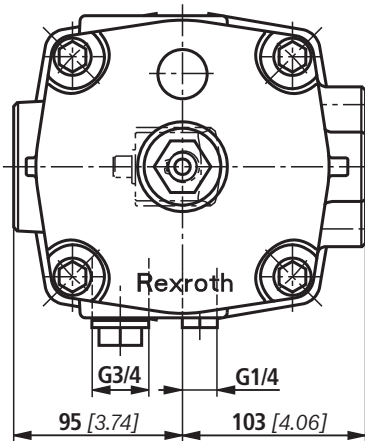
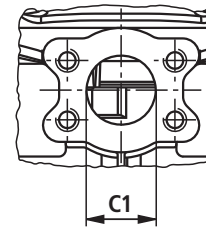
¹⁾ With outlet pipe 150 mm [5.9"]

²⁾ Servicing height for filter elements

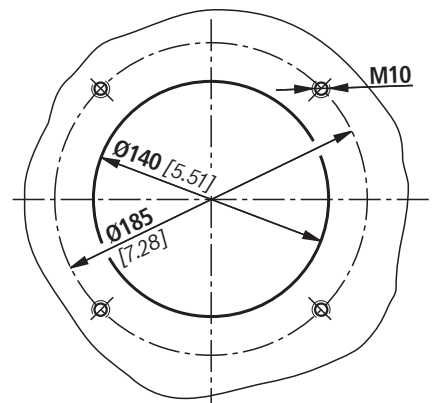
Unit dimensions size 0160...0250 (dimensions in mm [inch])



View X



Tank connection diagram:

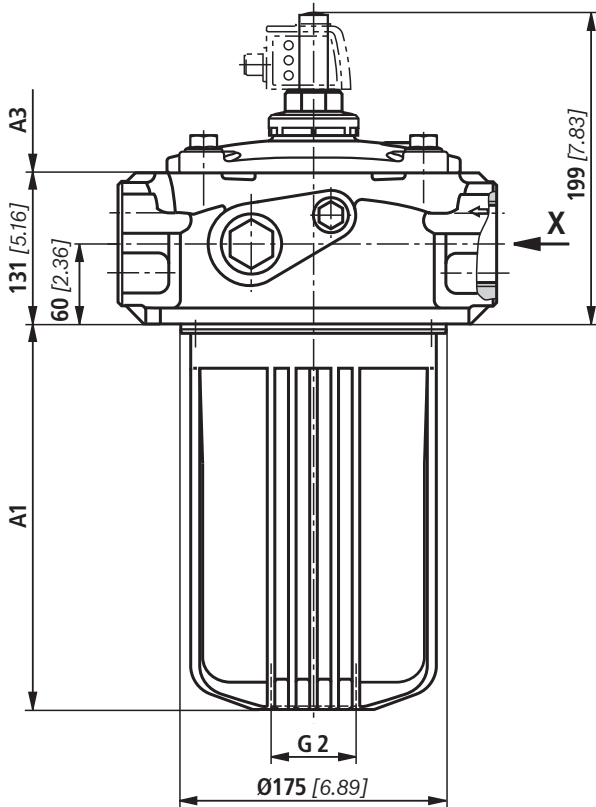


Filter housing for filter elements in accordance with DIN 24550

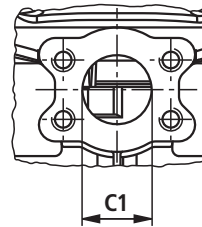
Type 10 TEN	Content in l [gal]	A1	A3 ¹⁾	C1			
				Standard Pipe thread according to ISO 228	Optional Pipe thread according to ISO 228	Optional SAE flange according to ISO 6162	Optional Pipe thread according to SAE J1926
0160	3.5 [0.92]	160 [6.30]	160 [6.30]	G1 1/4	G1 1/2	SAE 1 1/4" 3000 psi/ SAE 1 1/2" 3000 psi/	SAE 24 1 7/8-12 UN-2B
0250	4.5 [1.19]	250 [9.84]	260 [10.24]	G1 1/2	G1 1/4		

¹⁾ Servicing height for filter element replacement

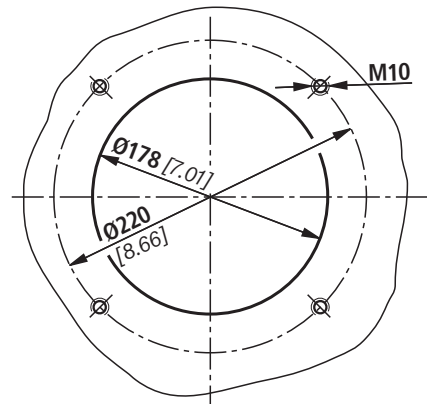
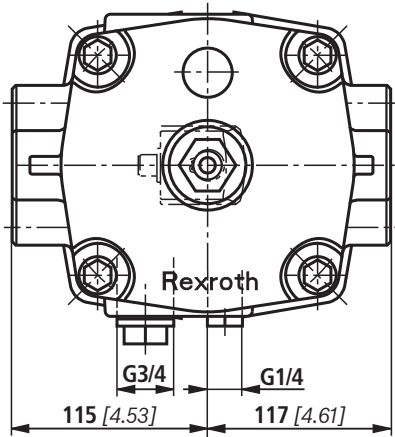
Unit dimensions size 0400...0630 (dimensions in mm [inch])



View X



Tank connection diagram:

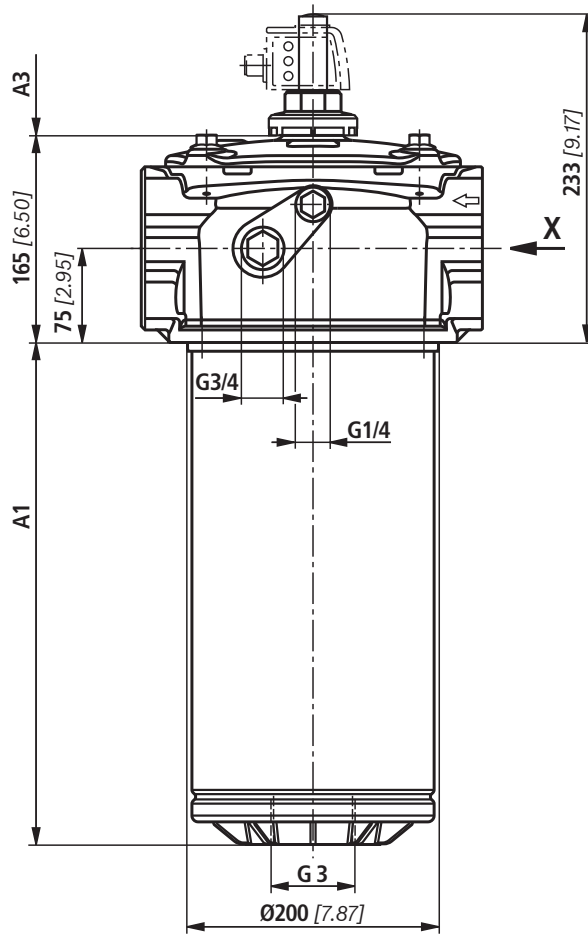


Filter housing of sizes 0400 to 0630

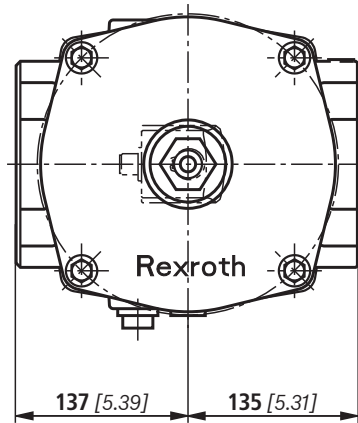
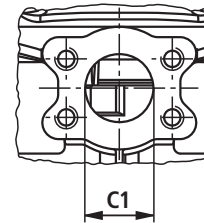
Size	Content in l [gal]	A1	A3 ¹⁾	C1	
				Standard SAE flange according to ISO 6162	Optional SAE flange according to ISO 6162
0400	7 [1.85]	255 [10.04]	250 [9.84]	SAE 2" 3000 psi	SAE 2 1/2" 3000 psi
0630	10 [2.64]	405 [15.94]	400 [15.75]	SAE 2 1/2" 3000 psi	SAE 2" 3000 psi

¹⁾ Servicing height for filter element replacement

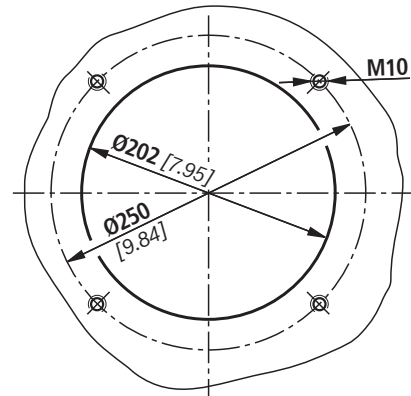
Unit dimensions size 1000...2500 (dimensions in mm [inch])



View X



Tank connection diagram:

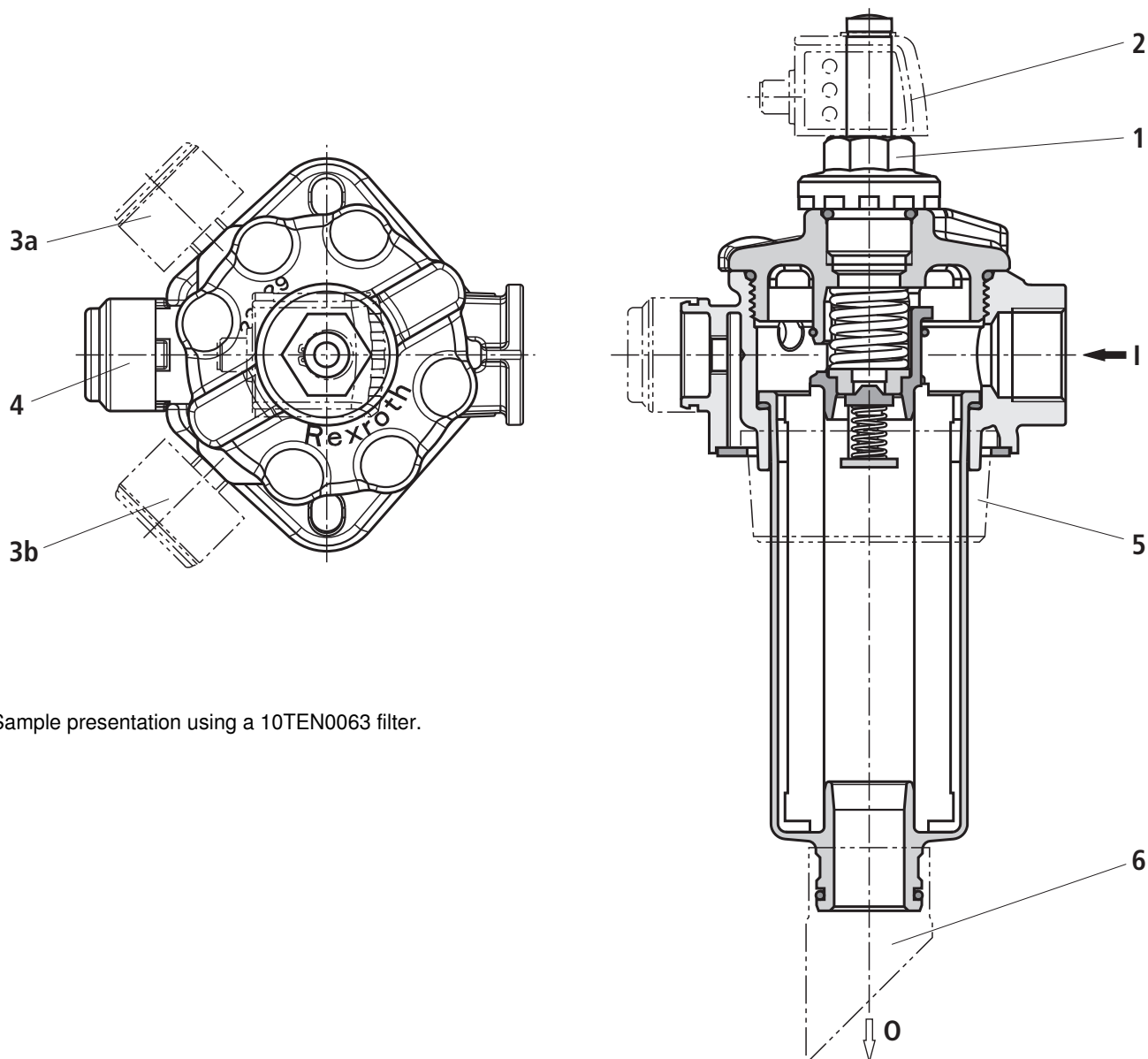


Filter housing of sizes 1000, 2000 and 2500

Size	Content in l [gal]	A1	A3 ¹⁾	C1	
				Standard SAE flange according to ISO 6162	Optional SAE flange according to ISO 6162
1000	15 [3.96]	391 [15.39]	530 [20.87]	SAE 3" 3000 psi	SAE 4" 3000 psi
2000	25 [6.60]	749 [29.49]	880 [34.65]	SAE 4" 3000 psi	SAE 3" 3000 psi
2500	32 [8.45]	983 [38.70]	1130 [44.49]		

¹⁾ Servicing height for filter element replacement

Options



Sample presentation using a 10TEN0063 filter.

Options	Item	Ordering code	Filter size		
			0040...0100	0160...0630	1000...2500
Mechanical optical indicator	1	P2,2; V0,8; V1,5; V2,2	●	●	●
Pressure gauge right	3.a	MR	●	-	-
Pressure gauge left	3.b	ML	-	●	●
Mechanical optical + pressure gauge right	1 + 3.b	MRV2,2	●	●	●
Minimess connection	3.a or 3.b	M	●	●	●
Filling port (without maintenance indicator)	1	S	●	●	●
Outlet pipe ¹⁾	6	R	●	See chapter "Spare parts and accessories"	
Ventilation filter	4	F	●	-	-
Ventilation filter + surge protection	4 + 5	FN	●	-	-
Electronic switching element	2	See chapter "Ordering code, standard types"			

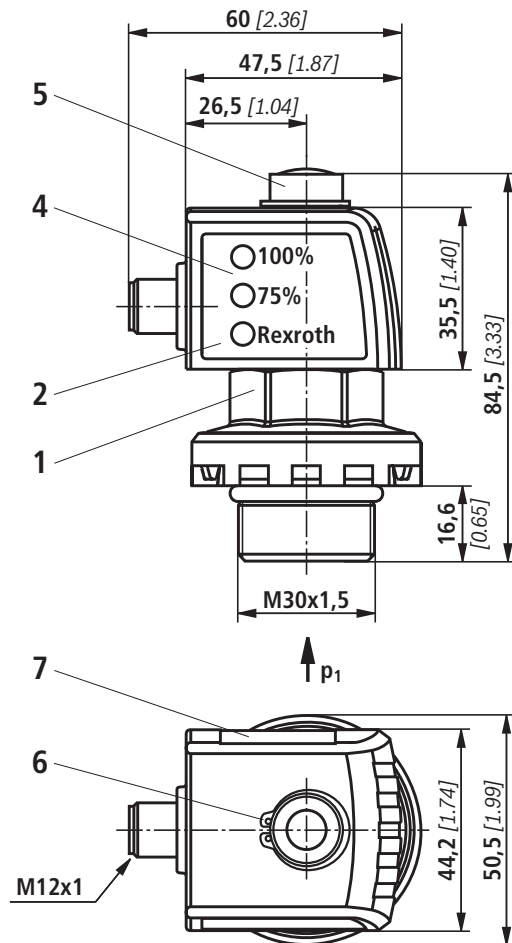
¹⁾ Outlet pipe for sizes 0040...0100 are only available pre-assembled through the complete filter.

Outlet pipes for other sizes must be ordered separately and are not pre-assembled.

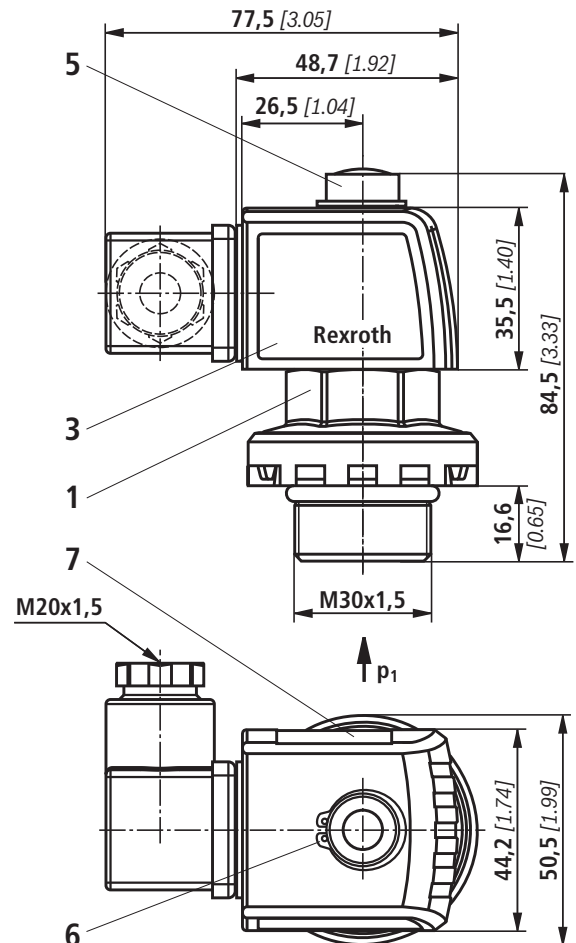
For the ordering code refer to "Spare parts and accessories".

Maintenance indicator (dimensions in mm [inch])

**Electronic switching element
with round plug-in connection M12x1, 4-pin**



**Electronic switching element
with rectangular plug-in connection EN 175301-803**



- 1 Mechanical optical maintenance indicator;
max. tightening torque $M_{A \max} = 50 \text{ Nm}$ [36.88 lb-ft]
Tightening torque for backpressure indicator in
PA6.6 $M_{A \max} = 35 \text{ Nm}$ [25.82 lb-ft]
- 2 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°);
plug-in connection M12x1, 4-pin
- 3 Switching element with locking ring for electrical maintenance indicator (rotatable by 360°);
plug-in connection EN175301-803
- 4 Housing with three LEDs: 24 V =
Green: Stand-by
Yellow: Switching point 75 %
Red: Switching point 100 %
- 5 Optical indicator bistable
- 6 Locking ring DIN 471-16x1,
Material no. R900003923
- 7 Name plate

Notes:

Presentation contains mechanical optical maintenance indicator (1) and electronic switching element (2) (3).

Switching elements with increased switching power at request.

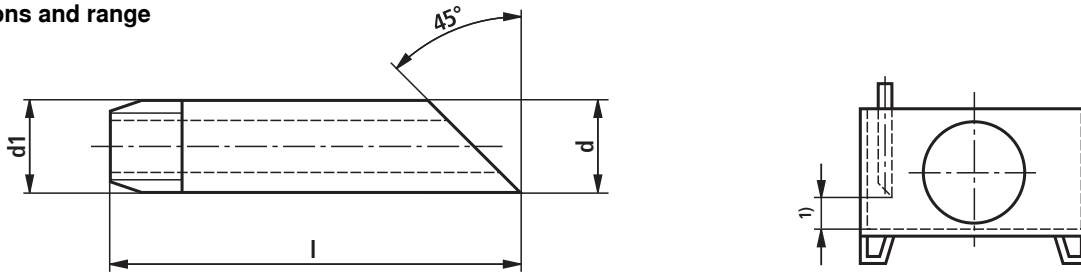
If an electronic switching element with signal suppression up to 30 °C is used (WE-2SPSU-M12X1, **R928028411**), it has to be ensured that the aluminum version of the mechanical-optical maintenance indicator must be used. In the filter type key, these maintenance indicators are referred to as "V2,2", "V1,5" or "V0,8". Also refer to the chapter "Spare parts and accessories".

The temperature-controlled signal processing does not work with mechanical-optical maintenance indicators made of polyamide.

Spare parts and accessories (dimensions in mm [inch])

Pipes with threaded connection

Dimensions and range



¹⁾ Recommended distance to tank bottom (unless otherwise specified): 60...160 mm [2.4...6.3"]

From a pipe length of 400 mm, we strongly recommend fixing the outlet pipe by means of a tank-internal pipe bracket.

DN	Dimensions				Galvanized	ES (stainless)
	d	d1	l		Description: ROHR AB23-03/R...	Description: ROHR AB23-03/R... -ES
					Material no.	Material no.
40	48.3	R 1 1/2	250	1 1/2 L = 250	R900109501	R900062066
			400	1 1/2 L = 400	R900083146	R900074878
			800	1 1/2 L = 800	R900029854	-
			1300	1 1/2 L = 1300	R900302230	-
			2000	1 1/2 L = 2000	R900229461	-
50	60.3	R 2	400	2 L = 400	R900727174	R900987657
			800	2 L = 800	R900029856	R900226706
80	88.9	R 3	160	3 L = 160	R900062845	-
			200	3 L = 200	R900061785	R900062067
			350	3 L = 350	R900084137	-
			650	3 L = 650	R900076923	R900757513
			800	3 L = 800	R900029838	R900987653

Thread:

Whitworth pipe thread according to DIN 2999 part 1, poppet 1:16

Material/surface treatment:

St 33-1 according to DIN 17100 / galvanized (B) according to DIN 2444 1.4541

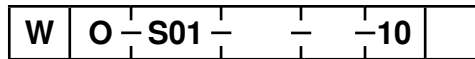
Order example/search term

Pipe according to DIN 2440 (ISO 65) with thread R 1 1/2 and L = 250 mm, galvanized:

ROHR AB23-03/R 1 1/2 L = 250 Material no. R900109501

Spare parts and accessories

Mechanical optical maintenance indicator



Maintenance indicator	= W	
Mechanical optical indicator	= O	
Design		
Backpressure M30x1.5	= S01	
Switching pressure		
0.8 bar (not possible with PA version)	= 0.8	
1.5 bar (not possible with PA version)	= 1.5	
2.2 bar	= 2.2	

Housing material		
Plastic	PA =	
Aluminum	no code =	
Max. nominal pressure		
10 bar	10 =	
Seal		
NBR seal	M =	
FKM seal	V =	

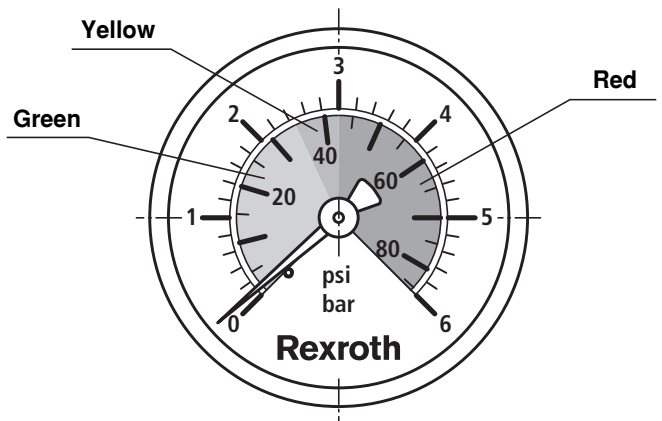
Mechanical optical maintenance indicator	Material no.
WO-S01-2,2-M-10	R901025310
WO-S01-2,2-V-10	R901066232
WO-S01-1,5-M-10	R928038776
WO-S01-1,5-V-10	R928038774
WO-S01-0,8-M-10	R928038773
WO-S01-0,8-V-10	R928038772
WO-S01-2,2-M-10-PA	R928038771
WO-S01-2,2-V-10-PA	R928038769

Ventilation filter element (only for 10TEN0040-0100)

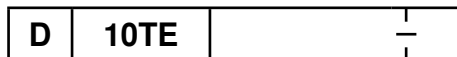
Type	Material no.
71.001 P5-S00-0-0	R928019705

Pressure gauge

Type	Material no.
M010 0-6 bar	R928019224



Seal kit



Seal kit		
Series 10 TE		
Size		
0040-0100	N0040-0100	
0160-0250	N0160-0250	
0400-0630	N0400-0630	
1000	N1000	
2000-2500	2000-2500	
Seal		
NBR seal	= M	
FKM seal	= V	

Seal kit	Material no.
D10TEN0040-0100-M	R928028013
D10TEN0160-0250-M	R928028014
D10TEN0400-0630-M	R928028015
D10TEN1000-M	R928039806
D10TE2000-2500-M	R928039807

Installation, commissioning and maintenance

Installation of the filter

When installing the filter make sure that

- a) the required servicing height for removing the filter element and the filter bowl is available,
- b) the installation opening for mounting the filter in the tank is not too large so that unobjectionable sealing is guaranteed,
- c) the filter is assembled on the tank cover without tension stress, and
- d) the filter housing is grounded.

The filter is designed with a two-part housing. It is to be installed into the tank with the filter bowl downward. It is recommended to lead drain pipes as of a length of 500 mm in a bracket in order to avoid oscillations caused by the fluid flow in the tank. It is to be ensured that in case of maintenance works, the filter bowl and the drain pipe are pulled out of the filter head together.

Connection of the electrical maintenance indicator

The electrical maintenance indicator is connected via the electrical switching element with 1 or 2 switching points, which is attached to the mechanical optical maintenance indicator and held by means of the locking ring.

When must the filter element be exchanged or cleaned respectively?

- After initial start-up of the system, the filter element is to be exchanged.
- Upon start-up in cold condition, the red pushbutton of the optical maintenance indicator may jump out and an electrical signal is output via the switching element. Only push the red pushbutton in again after the operating tempera-

ture has been reached. If it jumps out again immediately or if the electrical signal has not gone out at operating temperature, the filter element must be exchanged or cleaned respectively after the end of the shift.

- The filter element should be replaced or cleaned after max. 6 months.

Element exchange

- Switch off the system, discharge the filter on the pressure side.
- Remove the screws at the filter cover, loosen the filter cover and remove it upwards.
- Remove the filter element from the lower spigot in the filter bowl by turning it slightly.
- Check the seal rings at the filter cover and at the filter bowl for damage. If necessary, renew them. Also refer to seal kits in the "Spare parts and accessories" section.
- Renew filter element, filter elements made of wire mesh can be cleaned. The efficiency of the cleaning process depends on the type of dirt and the amount of the pressure differential before the filter element exchange. If the pressure differential after the filter element exchange exceeds 150 % of the value of a brand-new filter element, the G... element also needs to be replaced.
- Check whether the type designation or material number on the replacement element corresponds to the type designation/material number on the name plate of the filter.
- Install the new or cleaned filter element on the spigot again by slightly turning it.
- Reassemble the filter in reverse order.

Classification according to pressure equipment directive 97/23/EC

The tank mounted return line filters according to 51425 are pressure holding equipment according to article 1, section 2.1.4 of the Pressure Equipment Directive 97/23/EC (PED). As the maximum operating pressure does not exceed 10 bar, they are - according to annex II diagram 4 of the PED - produced according to article 3 and not provided with a CE mark.

Use in explosive areas according to directive 94/9/EC (ATEX)

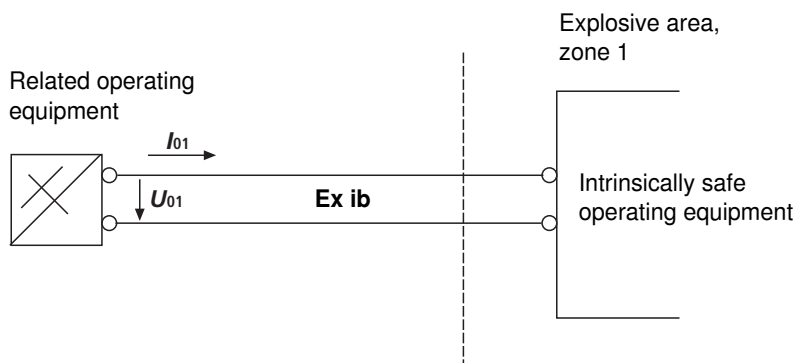
The tank mounted return line filters according to 51424 are no equipment or components in the sense of directive 94/9/EC and are not provided with a CE mark.

According to DIN EN 60079-11, the electronic maintenance indicators WE-1SP-M12x1 are simple, electronic operating equipment not having an own voltage source. This simple, electronic operating equipment may - according to DIN EN 60079-14 - in intrinsically safe electrical circuits (EEx ib) be used in systems for device group II,

category 2G (zone 1) and category 3G (zone 2) without marking and certification. The operating equipment is assigned to explosion group II B and temperature class T5.

When using Rexroth filters in explosive areas, potential equalization must always be ensured.

Possible circuit according to DIN EN 60079-14



The manufacturer's declaration according to DIN EN 13463 is available for this filter separately, with Material no. R928028899.

Notes

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